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whose name is remembered by Prevost's theory of exchanges. Professor C. E. Guye presided at the ceremony, and most of the learned societies with which Prevost was associated sent delegates, or addresses of congratulation. M. G. Lippmann represented the Paris Academy of Sciences, and delivered an oration. The Royal Society and the Royal Society of Edinburgh were represented by Dr. W. H. Young, F.R.S., and Mr. Mitchell, respectively, who presented addresses in English. The Berlin Royal Academy of Sciences sent a letter of congratulation signed by Professor Planck.

CHARLES GREEN ROCKWOOD, professor emeritus of mathematics at Princeton University since 1905, died on July 2 at Caldwell, N. J., aged seventy-one years.

At a meeting of the Royal Astronomical Society in London on June 13, Professor E. C. Pickering described the work being accomplished at Harvard College Observatory; Professor H. N. Russell, of Princeton University, spoke of his work in correlating the actual intrinsic brightness of the stars with their spectra, and Mr. S. S. Hough, astronomer at the Cape of Good Hope, gave details of the work being done at the Cape Observatory.

THE twentieth summer meeting and seventh colloquium of the American Mathematical Society will be held at the University of Wisconsin, Madison, Wis., during the week beginning Monday, September 8, 1913. The first two days will be devoted to the regular sessions for the presentation of papers. The colloquium will open on Wednesday morning and will close Saturday morning. Courses of lectures will be given by Professor L. E. Dickson, of the University of Chicago, on "Certain aspects of a general theory of invariants, with special consideration of modular invariants and modular geometry"; and by Professor W. F. Osgood, of Harvard University, on "Topics in the Theory of Analytic Functions of Several Complex Variables."

ARTHUR JAMES, London, has given the income of \$100,000 to the Middlesex Hospital, London, in memory of his brother, William

James, for the investigation of the causes of, and the search for a cure for, cancer.

NOTICE of the contest of the will of the late Henry E. Rutherford, who left a legacy of \$200,000 to the Rockefeller Institute for research in cancer, has been filed.

#### UNIVERSITY AND EDUCATIONAL NEWS

MR. ANDREW CARNEGIE has contributed \$20,000 toward the installation of the Institute of Chemistry of the University of Paris.

THE London *Times* states that in accordance with the policy of circumscribing the vast areas of affiliation of colleges to existing Indian Universities, definite steps are being taken to establish a university at or near Patna for the recently created Province of Behar and Orissa. The Lieutenant-governor in Council has appointed a committee, with Mr. R. Nathan, I.C.S., as president, to frame a scheme for the purpose. As in the case of the similar scheme for a university at Dacca, for the eastern portions of Bengal and for Assam, the report will be published and circulated for opinion before action is taken on the recommendations.

DR. REID HUNT, chief of the division of pharmacology, U. S. Public Marine Service since 1904, has accepted the position of professor of pharmacology at Harvard Medical School to succeed Dr. Pfaff.

DR. J. B. WHITEHEAD, formerly professor of applied electricity in Johns Hopkins University and fellow of the American Institute of Electrical Engineers, has been appointed head of the department of electrical engineering in the new School of Technology of the university.

DR. WILFRED HAMILTON MANWARING, formerly assistant in pathology and bacteriology in the Rockefeller Institute, has been appointed professor of bacteriology and immunity at Leland Stanford Junior University, San Francisco, Cal.

THE following changes have been made in the department of chemistry at Miami University: Raymond M. Hughes, professor of chem-

istry since 1898, and acting-president since 1911, has been elected president of the university. William H. Whitcomb has been advanced from associate professor to professor and head of the department. James E. Egan, Ph.D. (Illinois, 1912), has been elected assistant professor to fill the vacancy caused by the resignation of Harvey C. Brill, Ph.D. (Michigan, 1911), to enter the government service in the Philippine Islands.

DR. GEO. T. HARGITT, instructor in zoology at Northwestern University, has been appointed assistant professor of zoology at Syracuse University to fill the position made vacant by the transfer of Dr. Blackman to the School of Forestry.

MR. MAURICE PICARD, M.A. (Columbia, '11), has been elected assistant professor of botany in Middlebury College.

At the University of Wyoming Mr. C. J. Oviatt, of the Michigan Agricultural College, becomes extension professor of agriculture and state leader in farm management and demonstration; Mr. A. E. Bowman, of the Utah Agricultural College, becomes extension professor of agriculture and assistant state leader in farm management and demonstration; research chemist, S. K. Loy, becomes professor of chemistry and research chemist; engineering chemist, Karl Steik, becomes assistant professor of chemistry and engineering chemist.

MR. H. CLAY LINT, of the Kansas Agricultural College, has accepted the industrial fellowship in plant pathology recently established in Rutgers College. He will begin work on July 15.

THE General Board of Studies of Cambridge University have made the following appointments: Dr. Baker to be Cayley lecturer, and Dr. F. H. A. Marshall to be university lecturer on animal physiology, each for five years; and Mr. F. J. M. Stratton, M.A., Caius, to be university lecturer in astrophysics until March 31, 1918.

PROFESSOR EMIL ABDERHALDEN, professor of physiology in the University of Berlin, has declined the call to Vienna as the successor of Professor Ludwig.

## DISCUSSION AND CORRESPONDENCE

### THE COMPLEXITY OF THE MICROORGANIC POPULATION OF THE SOIL

MR. E. J. RUSSELL, of Rothamsted Experiment Station, has contributed a very interesting article in *SCIENCE*, under date of April 4, 1913.

In his opening sentence Mr. Russell says:

During the last few years a series of experiments have been carried out in this laboratory by Dr. Hutchinson and myself which we can only interpret as showing that bacteria are not the only active inhabitants of the soil.

I write to say that I agree with this conclusion. I also agree fully with most of his statements of fact in paragraphs 1, 2, 3, 4, 5, and 6, and also with his paragraphs 7, 8, 9 and 10—in so far as they apply to the results obtained, though of course I can see no necessity of assuming that the protozoa constitute the “limiting factor” which is extinguished through partial sterilization. Mr. Russell is possibly right when he says:

It is evident that the factor limiting bacterial numbers in ordinary soils is not bacterial, nor is it any product of bacterial activity, nor does it arise spontaneously in soils.

Though from their experiments, I see no necessity of assuming that the protozoa bring about this limitation.

In my article entitled “Interpretations of Results Noted In Experiments Upon Cereal Cropping Methods After Soil Sterilization,” in *SCIENCE*, under date of February 10, 1912, I called attention to the thought that it might clarify matters to see what would happen in the case of “actual sterilization” of the soil.

I now call attention to the fact that in the Russell-Hutchinson experiments the sort of sterilization mentioned as being “partial” is just as liable to be effective against a large number of saprophytic fungi as it is to be effective against encysted amœboid types and that such saprophytic or semi-saprophytic fungus organisms are known to be as great reducers of organic matter, at least in its preparatory stages for bacterial activity, as some of the bacteria themselves.

If Messrs. Hutchinson and Russell are only